

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/022724A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 F16K1/30 F17C13/04 F16K1/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 F16K F17C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2 924 421 A (POHDNDRF HENRY L) 9 February 1960 (1960-02-09) column 2, line 37 - column 4, line 46 figures	1-18
Y	EP 0 500 207 A (KYOHARA MASAKO) 26 August 1992 (1992-08-26) column 2, line 54 - column 3, line 48 column 4, line 16 - line 51 figures 1,6-8	1-5, 10-14
Y	DE 196 45 608 A (MESSER GRIESHEIM GMBH) 7 May 1998 (1998-05-07) column 2, line 57 - line 67 column 3, line 21 - line 31 figures 1,3	6-9, 15-18
-/-		

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

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Date of the actual completion of the International search

15 November 2004

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22/11/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 230 737 B1 (DEBRIA THOMAS EDWARD ET AL) 15 May 2001 (2001-05-15) column 2, line 24 - column 4, line 21 figures 1,2 -----	1,3,10, 12
A	US 3 549 121 A (MERCIER JACQUES H) 22 December 1970 (1970-12-22) column 1, line 39 - column 3, line 20 figures 1-4 -----	1-18
A	FR 503 537 A (APPLIC DES GAZ LIQUEFIES SA) D) 12 June 1920 (1920-06-12) page 1, line 38 - page 3, line 25 figures -----	1-18
A	GB 157 189 A (SCHRADERS SON INC) 28 July 1921 (1921-07-28) page 1, line 79 - page 2, line 100 figures -----	1-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/022724

Patent document cited in search report	Publication date	Patent family member(s)			Publication date
US 2924421	A 09-02-1960	NONE			
EP 0500207	A 26-08-1992	JP 3017816 B2 JP 5118447 A CA 2060984 A1 DE 69212609 D1 DE 69212609 T2 EP 0500207 A2 KR 9702000 B1 SG 44502 A1 US 5178366 A			13-03-2000 14-05-1993 21-08-1992 12-09-1996 27-03-1997 26-08-1992 20-02-1997 19-12-1997 12-01-1993
DE 19645608	A 07-05-1998	DE 19645608 A1 DE 29623693 U1			07-05-1998 08-04-1999
US 6230737	B1 15-05-2001	NONE			
US 3549121	A 22-12-1970	FR 1533447 A FR 95063 E			19-07-1968 11-05-1970
FR 503537	A 12-06-1920	FR 22963 E			19-09-1921
GB 157189	A 28-07-1921	NONE			